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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,729	11/30/2001	Bin Zhao	12569-08/NEC	5389

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STRADLING YOCCA CARLSON & RAUTH
IP Department
P.O. Box 7680
660 Newport Center Drive, Suite 1600
Newport Beach, CA 92660-6441

EXAMINER
JUBA JR, JOHN

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/016,729	ZHAO, BIN	
	Examiner	Art Unit	
	John Juba	2872	

-- The MAILING DATE of this communication appears on the cover sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) ~~4-6~~ 6 and 8 is/are allowed.

6)☒ Claim(s) 1-3, 7, and 9-17 is/are rejected.

7)☒ Claim(s) 4, 5 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 November 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Claims 4, 5, 7, and 8 are objected to because of the following informalities: Appropriate correction is required:

Claim 4 is objected to for the spelling of "defining" in line 2, and for the spelling of "disposed" in each of lines 15 and 17. Claim 5 inherits the deficiency through its dependency.

In claim 7 (line 1), it is believed that "efforts" should read "effects".

Claims 7 and 8 are objected to for incorporating equation (11) by reference. Wherever possible, the claims should stand on their own. Incorporation is a necessity doctrine, not merely a doctrine of convenience. MPEP 2173.05(s).

Claim 15 is objected to for the spelling of Clearceram™. Further, the name should be identified as a trademark.

Claim Rejections - 35 USC § 112

Claims 7, 11, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, the recitation "or the like" renders the claim indefinite. It is unclear what, other than a phase delay element, may be likened to a phase delay element for

the purposes of the method. Thus, the claim is indefinite as to the scope of what is to be accomplished.

Claims 11 and 15 are indefinite as to the materials included in the combination. The trademark Clearceram™ and trade name S-FPL51 are used to identify the manufacturer of the product, rather than the product itself. The examiner believes that the formulation of either of these materials is subject to change at the whim of the manufacturer. Thus, the scope of the claims is subject to change and accordingly, must be considered indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The foregoing is a quotation of the appropriate paragraph of 35 U.S.C. § 102(e) in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action. See attachment.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Shirasaki (U.S. Patent number 5,982,488). Referring *for example* to Figure 7A and the associated text, Shirasaki discloses the two materials (601)(602) cooperating as recited.

Claims 1 – 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Paiam. In the discussion of Figures 11 and 12 Paiam discloses that the air gap and the polymer gap cooperate to mitigate temperature effects and maintain the center frequency (Col. 6, lines 1 – 3).

Claims 9, 10, and 13 – 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Lunt (U.S. Patent number 6,215,802). Referring *initially* to Figure 5 and the associated text as it relates to claims 9, *et seq.*, Lunt discloses a light transmitting material (R) and a holder (A)(S)(B). The light transmitting material is fixed at a first end and, in cooperation with the holder (at 34), has a second end (35) that defines a gap. The holder "comprises" Clearceram Z™, an ultra low expansion material having a temperature coefficient of about 0.08 ppm/°C.

With regard to claim 16, Lunt teaches that there are structures in which the transmissive material (19) has a thickness much larger than the gap (17). See Figure 2. The preambular recitation of the structure as "thermally compensating" does not add any positive limitation to the claimed structure as would distinguish over the prior art figure (Fig. 2) discussed by Lunt.

Claims 9, 10, 13, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Cao (U. S. Patent number 6,130,971). Referring to Figure 8 and the associated text, Cao discloses a temperature compensating phase delay element defining a Gires-Tournois interferometer. First, the cavity may be regarded as the "gap", since element (780B) is glass – "a light transmitting material", and is secured at one end of a "holder". There is no positive recitation of light being transmitted through the material. With particular regard to claim 13, the examiner relies upon the "gap" between the λ/8 plate (480A) and light transmitting material (780A). There is no positive recitation in claim 13 of the "gap" cooperating as a resonator. Thus, it can be seen that the back surface of element (780A) is in fixed position with respect to "zero expansion" holder (810). One of ordinary skill would regard "zero expansion" as "ultra low expansion".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen, et al (U.S. 2002/0085252A1). Chen, et al fix a light transmitting material (S-FPL51) in a holder so that it is free to expand. Accordingly, it will be appreciated that there is a gap

at at least one end of the material. Thus, Chen, et al disclose the invention substantially as claimed. However, Chen, et al do not disclose the material as being fixed to the holder particularly at one end as recited. Nonetheless, one of ordinary skill would have appreciated that, in order to permit the material to expand as taught by Chen, et al, the material could only have been fixed to the holder at a single point. Thus, barring any *unexpectedly* improved result arising from the particular selection of one end for fixing, it appears that such a selection would have arisen through only routine experimentation and optimization of the design of Chen, et al. With regard to for their design [0076]+.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen, et al (U.S. 2002/0085252A1), in view of Official notice. As set forth above for claim 9, Chen, et al disclose the invention substantially as claimed. However, Chen, et al do not disclose the ends of the transmitting material as being of zero reflectivity. Nonetheless, the examiner takes Official notice of the fact that it was well-known to provide antireflection films on both surfaces of an optical element, in the interest of reducing signal loss due to Fresnel reflection. One of ordinary skill would have appreciated that minimal signal loss was a pivotal requirement in the apparatus of Chen, et al, if the device was to be used in optical communications. Thus, one of ordinary skill would have found it obvious to provide both end surfaces of the transmitting material of Chen, et al with a substantially zero reflection condition, in the interest of minimizing channel loss, as was well known.

Allowable Subject Matter

Claims 4 – 6 and 8 are allowable over the prior art of record. Claim 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The following is a statement of reasons for the indication of allowable subject matter: The prior art, taken alone or in combination, fails to teach or to fairly suggest a method or an apparatus in which a solid light transmissive material is fixed at one end to an ultra low expansion holder with its second end substantially free to move with respect to the holder, particularly wherein the thermal coefficient of optical path length of the assembly is given by Equation (11) and wherein

the terms of that equation are either minimized or substantially canceled among each other, as recited in claim 4; or

the first two terms of that equation substantially cancel each other, and L_g is much greater than L_a such that the third term is approximately zero, as recited in claim 6;

at least two terms of the equation substantially cancel each other and the rest are minimized, as recited in claim 7; or wherein

each of the contributing terms is substantially canceled among the others, as recited in claim 8.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sterling, et al disclose a thermally compensated Fabry-Perot etalon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John Juba
Examiner, GAU 2872

November 29, 2002

Attachment

Recent Statutory Changes to 35 U.S.C. § 102(e)

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at www.uspto.gov or call the Office of Patent Legal Administration at (703) 305-1622.